époques ci-dessus mentionées. Je crois que cette nouvelle correspondance entre les tâches solaires et le magnétisme terrestre, que j'avais déjà soupçonnée en 1853 (voir les 'Mittheil. der Nat. Ges. in Bern), suffira pour convaincre les derniers sceptiques qu'il y a une correspondance réelle entre ces deux phénomènes.

A peine avais-je terminé cette recherche et donné à l'Académie de Paris le même résumé que vous avez lû dans les dernières lignes et que j'aimerais voir communiqué par vous à la Société Royale, que je trouvai dans votre 3me mémoire sur les 'Magnetic Disturbances' la même période découverte par vous dans ces 'Disturbances.' Je suis bien heureux de vous rencontrer de nouveaux dans mes études, et je donnerai dans le 3me numéro de mes 'Mittheilungen,' qui paraîtra sous peu, et un extrait de votre lettre du 16 Décembre et la date de votre 3me mémoire.

IV. "Anatomical Description of a Species of Asteroid Polypes, probably forming the type of a new genus of Alcyonidæ." By John Denis Macdonald, Assist. Surg. R.N. Communicated by Capt. Denham, F.R.S. Received January 13, 1857.

On leaving the Conway Reef (lat. 21° 44′ 48″ S., long. 174° 37′ 45″ E.), July 4, 1855, a very beautiful branched asteroid Zoophyte, belonging to the Alcyonidæ, was brought up from a depth of between 30 and 40 fathoms, on the buoy-rope of the anchor.

The polypidom, from a trunk of about one inch and a half in diameter, branched off, with much irregularity, but generally in a dichotomous manner, into very minute subdivisions.

The investing membrane was strengthened by the close deposition of elongated, fusiform, and minutely tuberculated spicula of a deep crimson-lake tint, which impart their colour to the whole mass.

The internal substance was chiefly composed of longitudinal muscular septa, radiating from the central axis (which contained no denser material), frequently communicating with one another laterally, and being fixed into the internal surface of the integument in vertical lines. These muscular septa were invested on each side with a layer of finely reticulated vessels; both sets being connected by

numerous transverse trunks passing through the intervening muscular tissue, and the spaces between the septa were filled with a transparent glairy fluid.

The polyp-cells were exposed and solitary, resting on the internal surface of short branchlets strengthened by large dorsal spicula, one of which, much larger than the rest, extended considerably beyond the polyp-cells, tapering gently to a needle-like point. These latter spicula are covered with tubercles, and in every respect, but in size, similar to those of the general integument.

The small spicula on the internal or ventral surface of the branchlets diverge from one another in the peripheral direction, while those on the dorsal border are disposed longitudinally.

The mouth of each cup-like polyp-cell was surrounded with about eight projecting spicula, whose fixed extremities were curved upwards and inwards, festoon-fashion, while numerous smaller ones were so disposed as to fill up the open spaces posteriorly, and thus strengthen the body of the cell.

Although I have not been able to count the number of the oral tentacula satisfactorily, from their proportional size I can readily believe that there were about eight in this species, as in most if not all other asteroid polypes. They were broad and flat, tapering to a blunt point, like those of *Sarcodyction* (Forbes), to which genus I have no doubt this Zoophyte is nearly allied, though the habit of the polypidom is so very different.

March 19, 1857.

Dr. W. A. MILLER, Vice-President, in the Chair.

The following communications were read :—

I. "A System of Train-Signalling, by which also disabled Trains may telegraph for assistance without the aid of portable apparatus." By CHARLES V. WALKER, Esq., F.R.S. Received March 9, 1857.

(Abstract.)

When, in the early days of telegraphy, messages were sent and